

Web-Based Workflow A/E Orientation



*Denver Service Center
National Park Service
Division of Design and Construction*

Development Criteria



- Consistent with:
 - Private Industry
 - Other Federal Agencies
 - American Institute of Architects (AIA)
 - Federal Acquisition Regulations (FAR)
 - NAPA
 - DOI/NPS Web format
- Guiding Principles:
 - Performance-based not prescriptive
 - Minimize jargon
 - Avoid repetition
 - Streamline to improve efficiency
 - Ease of Use and Consistency
- Goals:
 - Finish
 - Create a web site that people will use

Objectives



1. Describe the DSC Web Site Evolution
2. Demonstrate Website Simplicity
3. Describe the Technical Branch Quality Assurance Workflow
4. Explain Frequency and Extent of the New Quality Assurance Reviews.

Web Access (Internet) for CAD Resources

- CAD Resources
 - CAD tools and templates available here

Denver Service Center CAD Resources

home :: standards :: sheet borders :: details :: articles :: contacts

drafting standards

Getting Started
If you're new to following the Denver Service Center (DSC) drafting standards, get started by reading the [Drafting Standards Checklist](#), also download the [DSC Cadd User's Guide](#) and the [Director's Order 10A Reference Manual](#).

If you're creating drawing files, download and install the **NPS AutoCAD Tools**. They will provide you with a pull-down menu and toolbars in AutoCAD, drawing templates, and give you access to DSC's sheet borders, standard symbols, and setup commands. For example, commands like DWIZ (dimension wizard) and TWIZ (text wizard) that setup dimension and text styles, which conform to the DSC drafting standards. These commands, and more, are documented in the DSC Cadd User's Guide.

The [Plotting](#) section below contains links to the DSC Pen/Color reference chart, and pen settings files in .pcp and .ctb format. Also, see the [fonts](#) section for DSC specific font files.

On This Page

- [Drafting Standards Checklist](#)
- [DSC Cadd User's Guide](#)
- [Director's Order 10A](#)
- [NPS AutoCAD Tools](#)
- [Drawing Templates](#)
- [Layer Settings](#)
- [Plotting](#)
- [Fonts](#)

DSC Cadd User's Guide
Its purpose is to set basic CAD standards to ensure consistent electronic deliverables for the NPS design and construction program. It provides guidance and procedures for preparing CAD products for the Denver Service Center (DSC) that meet the necessary archival requirements. It also documents all standard files and customization that have been developed to support the DSC CAD program.

Available in .pdf format, click here: [DSC Cadd User's Guide, May 1999](#) or right-click and choose "Save Target As" or "Copy to Folder", if you'd like to download the user's guide.

You'll need [Adobe Acrobat Reader](#) to view the user's guide.

Reference Manual 10A
is intended for NPS employees, joint agencies, and A/E contractors for use in preparation of NPS drawings. To produce archive-ready drawings, maintain uniformity of work and to facilitate review of both A/E submittals and NPS-generated products, these requirements should be met for all drawings.

Directors Order 10A set forth these basic requirements. This document, Reference Manual 10A, includes specific information and graphic examples of drawing requirements.

Available in .pdf format, click here: [Reference Manual 10A](#) or right-click and choose "Save Target As" or "Copy to Folder", if you'd like to download the reference manual.

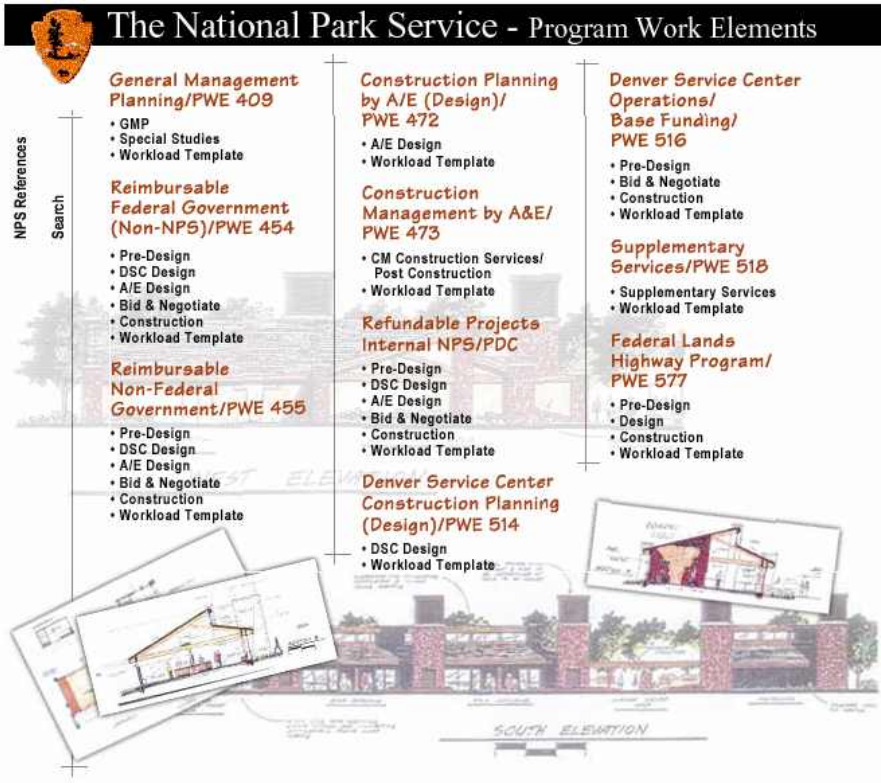
[Click here](#) for printing tips.

You'll need [Adobe Acrobat Reader](#) to view Reference Manual 10A.

- <http://cadd.den.nps.gov/>

Web Access (temporary Internet) for Construction Management

- Program Work Elements
 - Construction Management forms still available here



The National Park Service - Program Work Elements

General Management Planning/PWE 409

- GMP
- Special Studies
- Workload Template

Reimbursable Federal Government (Non-NPS)/PWE 454

- Pre-Design
- DSC Design
- A/E Design
- Bid & Negotiate
- Construction
- Workload Template

Reimbursable Non-Federal Government/PWE 455

- Pre-Design
- DSC Design
- A/E Design
- Bid & Negotiate
- Construction
- Workload Template

Construction Planning by A/E (Design)/PWE 472

- A/E Design
- Workload Template

Construction Management by A&E/PWE 473

- CM Construction Services/Post Construction
- Workload Template

Refundable Projects Internal NPS/PDC

- Pre-Design
- DSC Design
- A/E Design
- Bid & Negotiate
- Construction
- Workload Template

Denver Service Center Construction Planning (Design)/PWE 514

- DSC Design
- Workload Template

Denver Service Center Operations/ Base Funding/ PWE 516

- Pre-Design
- Bid & Negotiate
- Construction
- Workload Template

Supplementary Services/PWE 518

- Supplementary Services
- Workload Template

Federal Lands Highway Program/ PWE 577

- Pre-Design
- Design
- Construction
- Workload Template

This site requires the use of the Adobe Acrobat Reader. If you don't have it, you can [download it](#) for free on the Adobe site.

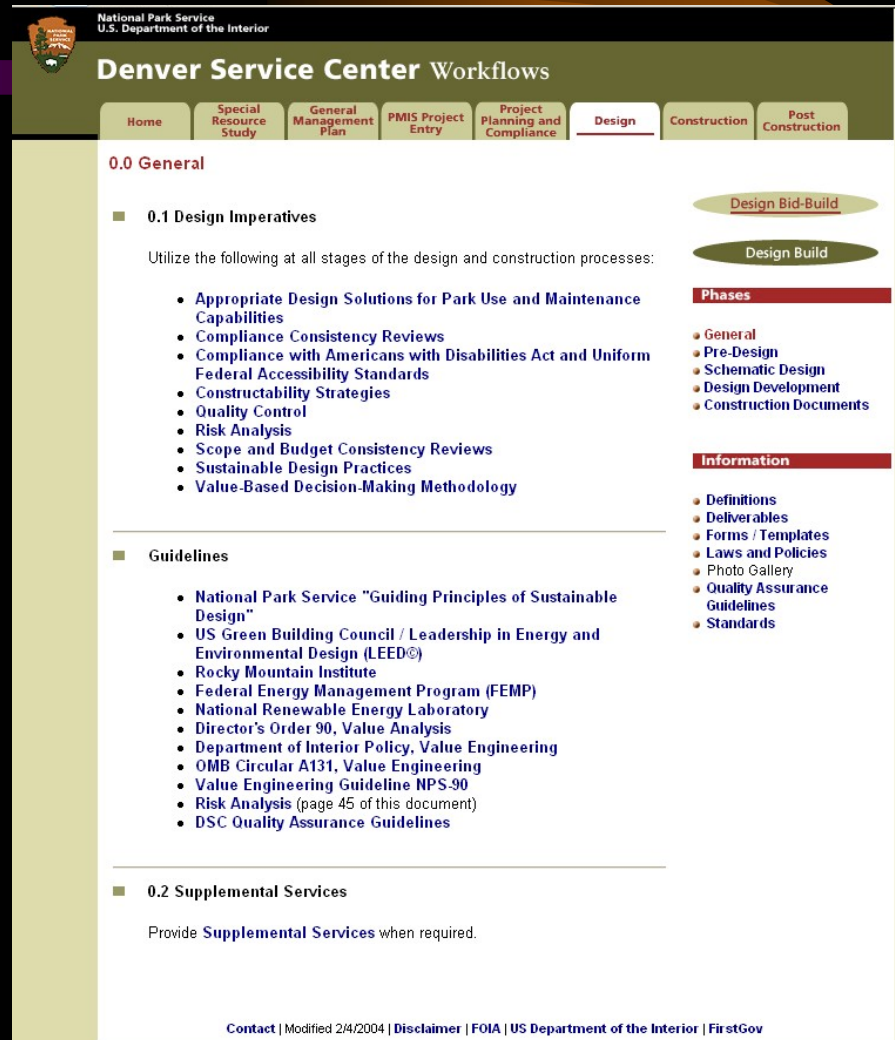
Questions/Comments? Send them to Kate_Winkler@nps.gov.

[Handout](#)

<http://workflow.den.nps.gov/>

New Internet Web Site

- Denver Service Center Workflows
 - New web site designed for both public and NPS access
 - Based on the new workflow



- http://workflow.den.nps.gov/staging/1_Home/home.htm

Scope and Web Compatibility

1.0 PREDESIGN

1.1 Prepare Project Program

Using the PMIS Project Statement and the Facility Planning Model (when available) as the basis for programming, prepare the Project Program.

1.2 Prepare or Validate Environmental Screening Form

Working with the Park, prepare and validate the Environmental Screening Form (ESF) and identify the appropriate NEPA pathway (Categorical Exclusion (CE), Environmental Assessment (EA), or Environmental Impact Statement (EIS)). *(Include only if this A-E will be performing Compliance Services. If compliance is performed by a different A-E under a separate contract, delete this item. If the park has begun preparation of the ESF, then validation is required. If the park has not begun preparation of the ESF, then preparation is required.)*

1.3 Prepare Class C Estimate

Based on the Project Program prepared in Paragraph 1.1 above, prepare an independent Class C Construction Cost Estimate.

1.4 Prepare Cost Comparability Analysis

Research Cost Comparability data for a minimum of three similar built projects and prepare the Cost Comparability Analysis.

1.5 Prepare Scope and Cost Variations Documentation

Document all scope and cost variations relative to the PMIS Project Statement and the PMIS Class C Construction Cost Estimate. Notify the Project Manager of these changes.

1.6 Deliverables

1.6.1 Submit 100% Draft Predesign Documents for Review

Submit X copies of the following 100% Draft Predesign Documents for review: *(Minimum of 3 copies required for DSC Quality Assurance Review plus a minimum of 3 copies for PM/PS and Park and Region review.)*

Project Program
Environmental Screening Form *(ESF is not required as a deliverable if compliance is being performed by others)*
Class C Construction Cost Estimate
Cost Comparability Analysis
Documentation of Scope and Cost Variations

1.6.2 Resolve Predesign Review Comments and Submit Final Predesign Documents

Resolve all review comments and incorporate resolutions into the Final Predesign Documents. Submit three copies of the Final Predesign Documents and written responses to review comments, utilizing the NPS review form, within 15 calendar days of receipt of comments.

IV. SCHEDULE

The work in this task order shall be completed in accordance with the following schedule:

National Park Service
U.S. Department of the Interior

Denver Service Center Workflows

- Home
- Special Resource Study
- General Management Plan
- PMIS Project Entry
- Project Planning and Compliance
- Design**
- Construction
- Post Construction

1.0 Pre-Design

1.1 Prepare Project Program

Using the **PMIS Project Statement** and the **Facility Planning Model** (when available), as the basis for programming, prepare **Project Program**.

1.2 Prepare or Validate Environmental Screening Form

Working with park, prepare and/or validate **Environmental Screening Form (ESF)** and identify NEPA pathway-categorical exclusion (CE)(add link), **environmental assessment (EA)**, or **environmental impact statement (EIS)**.

Template: **Environmental Screening Form**

1.3 Prepare Class C Estimate

Based on Project Program, prepared in Paragraph 1.1, prepare an independent **Class C Construction Cost Estimate**.

Samples: **Class C Construction Cost Estimate**

1.4 Prepare Cost Comparability Analysis

Research **Cost Comparability** data for a minimum of three similar built projects and prepare the **Cost Comparability Analysis**.

Template: **Cost Comparability Analysis**

1.5 Prepare Scope and Cost Variations Documentation

Document all scope and cost variations relative to the PMIS Project Statement and PMIS Class C Construction Cost Estimate. Notify the **Project Manager** of these changes.

1.6 Deliverables

1.6.1 Submit the following 100% Draft Predesign Documents for review:

- Design Bid-Build
- Design Build

Phases

- General
- Pre-Design
- Schematic Design
- Design Development
- Construction Documents

Information

- Definitions
- Deliverables
- Forms / Templates
- Laws and Policies
- Photo Gallery
- Quality Assurance Guidelines
- Standards

- Scope of Services Outline matches the Web site outline

Quality Control

- In summary, the FAR (Federal Acquisition Rules), clause 36.609-2(b), states:
 - The Architect-Engineer is responsible for Quality Control which includes ensuring the technical accuracy, completeness, and correctness of the design, cost estimate and all engineering aspects and details, including coordination of all disciplines with each other and with the specifications.
 1. The A/E shall accomplish a Quality Control Review and make corrections prior to each submittal to the DSC.
 2. The Project Manager or Project Specialist shall be responsible for initiating each Quality Assurance Review with the DSC Technical Branch Quality Assurance Coordinator (QARC).
 3. Quality Assurance Reviews for all design projects will be performed by the DSC Technical Branch and occurs at the following milestones: Predesign, Schematic Design, Design Development, and Construction Documents.

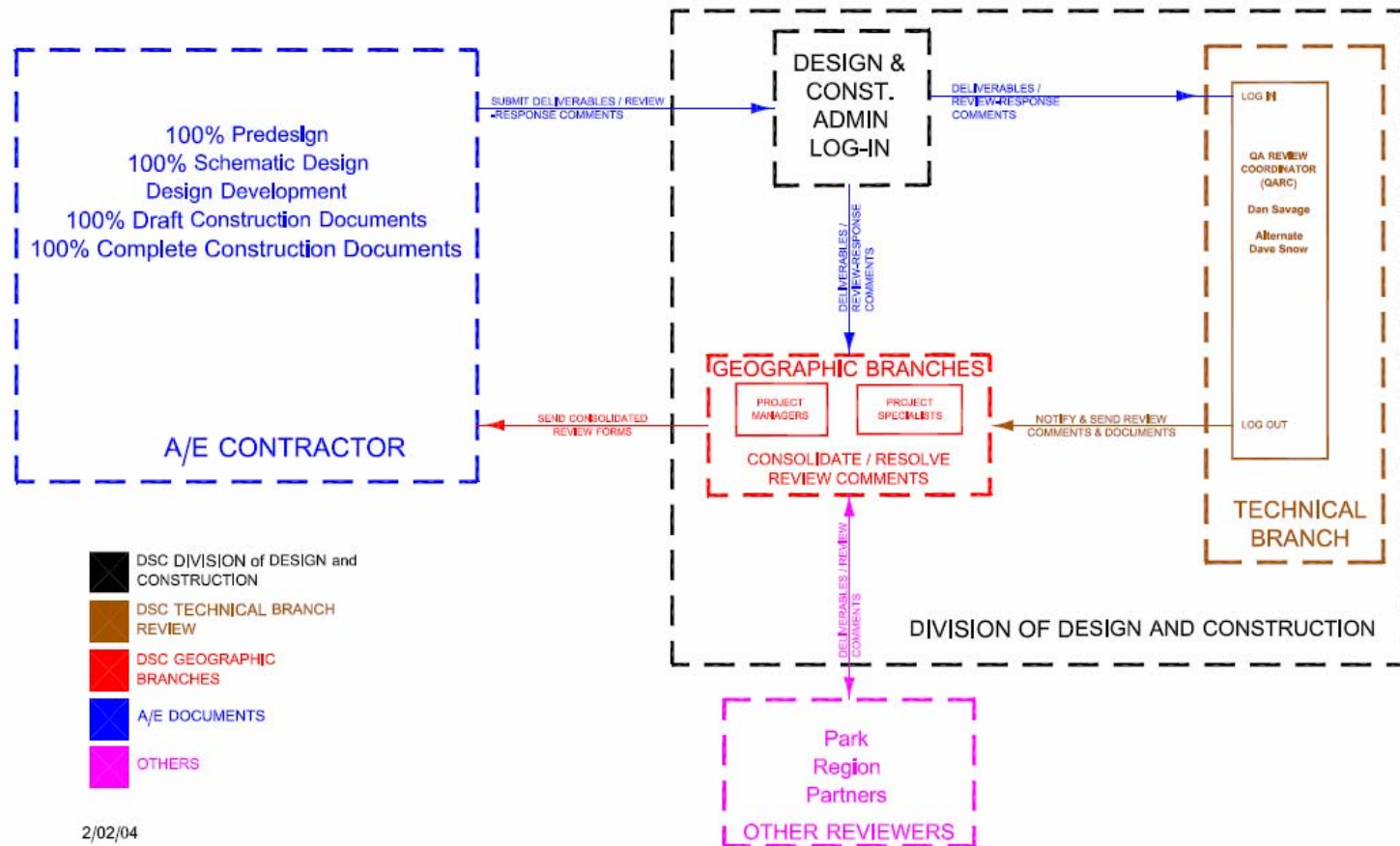
Quality Assurance



- For the purposes of the DSC Division of Design and Construction, **Quality Assurance** is defined as “Ensuring that the delivered products meet the established programmatic, performance and technical requirements of the project, that design standards are adhered to, that the design conserves the natural and cultural resources and is appropriate for the location, and that the NPS design ethic is sustained.”
 - The DSC Quality Assurance Process will verify that the project:
 - complies with NPS policies and guidelines,
 - complies with applicable laws and regulations
 - is within scope and budget
 - meets the programmatic requirements
 - is appropriate for the location
 - sustains the NPS design ethic
 - meets health, safety, and functional requirements
 - construction documents were developed utilizing sound design and engineering practices
 - construction documents are adequate to construct the intended facility

QA Workflow

QUALITY ASSURANCE REVIEW WORKFLOW DIAGRAM




The QA Review Coversheet

	A	B	C	D
1	Milestone	DENVER SERVICE CENTER		HOSP/56091
2	PD SD DD X CD CD COMPLETE	Quality Assurance Review		
3				
4	Project Title: Rehabilitate Bathhouses for	Project Manager: Paul Cloyd	Phone No.: (303) 969-2285	
5	Construction FY: 2004	Project Specialist: Jenny Reeves	Phone No.: (303) 969-2324	
6	A/E: Ed Chamberlin Architects	A/E's Project Manager: Werner Duecker	Phone No.: (720) 214-1550	
7	Due Date: 02/13/04	Drawing Number: 128/41064		
10	Remarks/Special Instructions: 52.236-23 Responsibility of the Architect-Engineer Contractor.			
11	RESPONSIBILITY OF THE ARCHITECT-ENGINEER CONTRACTOR (APR 1984)			
12	(a) The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiencies in its designs, drawings, specifications, and other services.			
13	(b) Neither the Government's review, approval or acceptance of, nor payment for, the services required under this contract shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract, and the Contractor shall be and remain liable to the Government in accordance with applicable law for all damages to the Government caused by the Contractor's negligent performance of any of the services furnished under this contract.			
14	Quality Assurance review comments shall apply to all issues throughout the review set that have either identical or similar concerns. No attempt is made to identify all occurrences. The contractor's own Quality Control shall insure that these review comments are thoroughly resolved prior to any subsequent submittals.			
15				
16	ROUTING INFORMATION (route only to marked boxes):			
17		Discipline	Summary Comments	
18	✓	Landscape Architecture (LA)		
19	✓	Architecture (AR)		
20	✓	Preservation Architecture (PA)	DS 02/04/04 Needs Predesign and Schematic Design submittal. Minor NPS-10 issues	
21	✓	Structural Engineering (SE)	LR 2/05/04	
22	✓	Mechanical Engineering (ME)		
23	✓	Electrical Engineering (EE)		
24	✓	Roofing/Waterproofing (RW)	PET 2/5/04	
25	✓	Safety Engineer (SF)	BO 2/6/04	
26	✓	NPS-10 (ET)		
27	✓	Estimating (EST)		
28	✓	Project Specialist (PS)		
29	✓	Project Manager (PM)		
30	✓	Park		
31	✓	Region		
32	✓	Others		
33				
34				
35				
36				
37				
38				
39				
	COVER / CE / LA / AR / PA / SE / ME / EE / RW / SF / CN / SU / LT / ET / EST / PS / PM / PARK / REGION / OTHERS /			





	A	B	C	D
1	DENVER SERVICE CENTER			
2	Quality Assurance Review			
3	Milestone			HOSP/56091
4	PD__SD__DD_X_CD		CD COMPLETE__	
5				
6	PRESERVATION ARCHITECTURE			
7	REVIEWER:	Dave Snow		
8	DATE REVIEWED:			
9	NO.	DWG or SPEC SECTION	QUALITY ASSURANCE COMMENT	A/E RESPONSE
10	1	No Predesign	It would have been beneficial to have seen a design program with this submittal. It is difficult to respond to any programmatic issues without one. We now require a design program (Predesign) for all projects be included with the review submittal, regardless of which level of review. Our reviews are at 100% Schematic, Design Development, 100% Draft Construction Documents, and 100% Construction Documents.	
11		No Schematic Design	What is Design Development based on. Was there a preferred alternative born out of the Value Analysis? Was there a value Analysis?	
12	2	Outline Specs	Outline specs will be required at full DD. A table of contents is not sufficient.	
13		Drawings	Demolition plans need legends	
14	3	Drawings	Font problem with the letters M and N	
15	4	Drawings	Hard to read numbers inside window symbols	
16	5	Drawings	Do not use window symbol for other than window notations, i.e. legend on A1.5L	
17	6	Drawings	Font sizes inside symbols must meet NPS-10.	
18	7	Drawings	Floor plans should be dimensioned.	
19	8	A4.2L	Some line weights too heavy.	
20	9	A6.1L	Font and line weight problems in door schedule title.	
21	10	Drawings	All North arrows should be adjacent to graphic scales and all plan sheets (i.e. A4.1Q) should have a north arrow.	
22	11			
23	12			
24	13			
25	14			
26	15			
27	16			
28	17			
29	18			
30	19			
31	20			
32	21			
33	22			
 COVER / CE / LA / AR / PA / SE / ME / EE / RW / SF / CN / SU / LT / ET / EST / PS / PM / PARK / REGION / OTHERS /				

QA Reviews

-

	A	B	C	D
1	Milestone		DENVER SERVICE CENTER	
2	PO_DD_DD_CD_CD_FINAL_X		Quality Assurance Review	MONO 77563
3	Project Title: Redstone Flood Plain V.C.	Project Manager: Patrick MacDonald	Phone No.: 303.987.6621	
4	Construction FY: 2005	Project Specialist: Jack Cook	Phone No.: 303.960.2480	
5	A/E: LDR&H	A/E's Project Manager: Scott Scarfone	Phone No.: 301.643.1035	
6	Date: 01/06/04	Drawing Number: 094-1005A		
7	Remarks/Special Instructions: \$2,236-23 Responsibility of the Architect-Engineer Contractor RESPONSIBILITY OF THE ARCHITECT-ENGINEER CONTRACTOR (AEC 1994)			
8	(a)The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other services furnished by the Contractor under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiencies in its designs, drawings, specifications, and other services.			
9	(b)Neither the Government nor the architect-engineer contractor, nor payment for, the services required under this contract shall be construed to operate as a waiver of any rights under this contract or of any cause of action arising out of the performance of this contract, and the Contractor shall bear and remain liable to the Government as applicable law for all damages to the Government caused by the Contractor's negligent performance of any of the services furnished under this contract.			
10	Quality Assurance review comments shall apply to all issues throughout the review set that have either identical or similar concerns. No attempt is made to identify all occurrences. The contractor's own Quality Control shall insure that these review comments are thoroughly resolved prior to any subsequent submittals.			
11	ROUTING INFORMATION (route only to marked boxes):			
12	<u> Distributions </u>			Summary Comments
13	✓ Civil Engineering (CE)			
14	✓ Landscape Architecture (LA)			
15	✓ Architecture (AR)			
16	✓ Preservation Architecture (PA)			
17	✓ Structural Engineering (SE)			
18	✓ Mechanical Engineering (ME)			
19	✓ Electrical Engineering (EE)			
20	✓ Roadway/Waterproofing (RW)			
21	✓ Safety Engineer (SF)			
22	✓ Constructability (CN)			
23	✓ Survey (SU)			
24	✓ Lighting (LT)			
25	✓ UPS-10 (ET)			

CONSTRUCTION

A Joy and Beauty Forever

- It's the little things.

